Exploiting Mobile and Wireless Technologies on Vocational Training

Demetrios Sampson (sampson@iti.gr)
Panagiotis Zervas (pzervas@iti.gr)
Advanced e-Services for the Knowledge Society Research Unit (ASK)
Informatics and Telematics Institute (ITI)
Center for Research and Technology Hellas (CERTH)
(http://www.ask4research.info)

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Outline of the Workshop

- Part 1: Introduction to m-training
  - Some Definitions
  - Dimensions of m-training
  - Limitations imposed by mobile/wireless technologies

- Part 2: The SMILE m-Training Environment
  - Main Stakeholders in SMILE m-VET
  - Needs of Main Stakeholders in SMILE m-VET
  - The m-Training Business Case
  - The Case of the SMILE Project

- Part 3: The SMILE Services/Tools
  - Empowering the Main Stakeholders in m-VET
  - Live Demo of SMILE Portal and Web-Based Repositories
  - Live Demo of SMILE Authoring Tool for Mobile VET Activities
  - Live Demo of SMILE PDA Learning Design Player
Part 1: Introduction to m-training
Some Definitions? (1/3)

• “m-learning (mobile learning) is defined as the ability of using handheld devices to access learning resources” [1]

Some Definitions? (2/3)

• “Three ways of learning can be considered mobile. Learning is mobile in terms of space; it is mobile in different areas of life; it is mobile with respect of time” [2]

Some Definitions? (3/3)

• “m-learning refers to the use of mobile and handheld IT devices, such as PDAs, mobile phones, laptops and tablet PCs, in teaching and learning” [3]

Dimensions of m-Learning

- Pedagogy (Scenarios & Activities)
- Devices
- Content
- Connectivity
Dimensions of m-Learning
Mobile devices used for educational purposes

- NoteBook computers/ Laptops
- Tablet PCs
- Personal Digital Assistant (PDAs)/ handheld PCs
- Smart Phones
- Cellular phones
Dimensions of m-Learning
Connectivity (Modes of use)

- **Mobile wireless/on-line/pure mobility**
  - Direct and constant access to the service provider

- **Disconnected use/stand-alone**
  - Content has to be downloaded in advance
  - Connection to the server provider whenever required, not in constant connection
  - Ability to take a course without being connected, but maintain the scoring and tracking data until the device is next connected to a network
Dimensions of m-Learning
m-Content

• W3C Standards on Mobile Web Content

• web-based resources appropriately processed to meet the restrictions (e.g. screen size) imposed by m-devices and wireless connectivity, in order to support mTraining activities
Dimensions of m-Learning

Pedagogy (Scenarios & Activities)

mLearning
Examples of m-Learning approaches

• mLearning as eLearning
• mLearning as traditional Classroom Assessment
• mLearning as performance support
• mLearning as facilitating learning in context
• mLearning as Content to “go” (podcasting ?)
• mLearning as Data-gathering tools for project-based learning
Technological Limitations

- **Device limitations**
  - Small screens limit the amount and type of information that can be displayed (mobiles and PDAs)
  - Limited storage capacities (especially mobiles and PDAs)
- **Connectivity limitations**
  - Bandwidth may degrade with a larger number of users when using wireless networks
- **Design considerations**
  - Lack of common platform specifications (e.g., Different sized screens - horizontal screens with some handheld computers, small square screens with mobile phones), difficult to develop content that will work anywhere
myConclusions 1.0

• During the last years m-learning has attracted the attention of technology-enhanced learning community mainly as a side effect of the growth of the mobile communications industry

• While the educational added-value of m-learning is under investigation, technological efforts are much needed to align m-learning technologies with the current state-of-the-art in TeL.
Part 2: The SMILE Environment
The SMILE Project

• SMILE – Supporting Vocational Education and Training through Mobile Learning Environments
• funded by the European Commission through the Leonardo da Vinci Programme
• started 1/1/2007 and lasts for 24 months
• (http://smile.iti.gr)
The SMILE Project Consortium

- Centre for Research and Technology Hellas Coordinator, Greece [Co-ordinator]
- Siemens Business Services, Turkey
- Laboratory for Mixed Realities, Germany
- University of Joensuu, Finland
- INHOLLAND University for Professional Higher Education, The Netherlands
- EST Education Centre, Poland
Main Stakeholders in m-VET

- **mTraining Content Suppliers:** the entity responsible for designing and developing independent *mTraining Resources* in the form of "Learning Objects", suitable for mobile delivery.

- **mTraining Activities Suppliers:** the entity responsible for designing mTraining Activities/Courses as a synthesis of a number of appropriately selected mTraining Resources based on a predefined scenario that reflects the training approach of this particular course.

- **mTraining Services Providers:** the entity responsible for designing mTraining Programmes as a synthesis of mTraining Courses and delivering mTraining services to end users.
The SMILE Environment
Needs of Main Stakeholders in m-VET

- **mTraining Content Suppliers:** need to convert their existing eTraining Resources (or create new resources) so as to be suitable for mobile and wireless delivery.

- **mTraining Activities Suppliers:** need to define training scenarios populated with appropriately selected mTraining Resources in order to develop their mTraining Activities/Courses.

- **mTraining Services Providers:** need to have access to mTraining courses in order to provide mTraining services (course delivery and support) to their end users.
myConclusions 2.0

• Tools to empower the different actors in their various capacities, are needed ...

• It is import in m-learning to adopt and possible enhance widely spread international TeL specifications (such as IEEE LOM and IMS Learning Design), so as to be able to include m-learning in large scale TeL business cases.
To this end, the adoption of the **IMS Learning Design** as the enabling specification for the *formal description of m-learning activities* is very important to be able to inter-exchange them between different platforms.

There are several benefits from this design decision:
- Our m-learning activities will not be isolated from the rest of our e-learning activities and services,
- Different m-learning service providers can deploy and re-use m-learning activities from common pools (like repositories of IMS LD learning activities)
- M-Learning activities can be inter-exchanged between different m-training settings
- Appropriate software can be developed to run these m-training activities via different devices.
Part 3: The SMILE Services/Tools
Empowering mTraining Content Suppliers (1/4)

- the SMILE project synchronizes existing guidelines (W3C Web Content Accessibility Guidelines) and best practice guides (W3C Mobile Web Best Practices 1.0) into a set of guidelines for the design of m-Training Resources.
The SMILE project develops appropriate metadata needed for describing mTraining resources.
Empowering mTraining Content Suppliers (4/4)

**SMILE Mobile Learning Objects Metadata Authoring Toolkit**

- Provides a step-by-step wizard for metadata authoring
- Allows mTraining Content Suppliers to tag their m-Training Resources
- Allows mTraining Activities Suppliers to tag their m-Training Activities/Courses
- Supports IEEE LOM plus additional metadata related to mobile devices
Empowering mTraining Courses Suppliers (1/2)

- The SMILE project carried out a study of appropriate mTraining Strategies and created a Reference Set of Generic mTraining Scenarios (Course Patterns) implementing the identified mTraining Strategies.
Empowering mTraining Activities Suppliers (2/2)

SMILE Authoring Tool for mobile VET Activities

- Allows mTraining Activities Suppliers to design and develop mTraining Activities/Courses using a Reference Set of predefined generic mTraining Scenarios
- Provides a graphical user interface for the definition of new templates (Course Patterns)
- Supports IMS Learning Design Level A and B
Empowering mTraining Services Providers (1/2)

**SMILE PDA Learning Design Player**

- Allows mTraining Services Providers to deliver their courses to their end users
- Support synchronization between different actors/users
- Support asynchronous messaging between different actors/users
- Supports IMS Learning Design Level A and B
- Client-side IMS Learning Design Player
- Renders HTML-based content and flash files. The content can be scaled up or scaled down according to the size of the device display.
The SMILE project provides access to a web-based Repository of mTraining Resources and m-Training Activities.
Live Demo of SMILE Tools/Services

- SMILE Portal and Web-Based Repositories
- SMILE Authoring Tool for Mobile VET Activities
- SMILE PDA Learning Design Player
Live Demo of SMILE Tools/Services

1. Create Mobile Web Content (+add Metadata)
2. Upload it to SMILE Repository [new Resources]
3. Search and Retrieve MobWebCont from the Repository of LOs
4. Implement a Scenario using AKS-LDT (pre-defined templates or not + add resources) (add metadata)
5. Upload the outcome (IMS LD) into the SMILE Repository [new Activity/Course]
6. Search and Retrieve MobActivities
7. Run from the SMILE PDA LD Player
Contact Details

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